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THE CONCEPT OF FLEXIBLE USE OF AIRSPACE

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Abstract: *Papers Identified as a judicious use need of European airspace by the European Civil Aviation Conference, since 1990 several versions of this concept have been stated, such as En-Route Strategy which had as implementing term 1998. January 2000 marks another stage included in the 2000+ Strategy, which names a version of this concept "One Airspace".*
Romania legitimates and implements this concept beginning with 2003. Thus, in order to define FUA concept the following form is accepted "the total of the activities undertaken in order to have a proper usage of air space by all users categories (military and civil operators), avoiding the permanent segregation of air space".
Organized in three action directions (Level one – Strategic, Level two – Pre-tactic, Level three – Tactic), the application of this concept can ensure:
- the simultaneously perform of military and civil flights in total security
- decrease of flight duration
- cost cut for military and civil operators
The FUA concept – through out specialized institutions and specific application methods – can ensure an optimal flux of safe, organized, fast and efficient European airborne traffic.

Keywords: *airspace, concept, flexible, management.*

1. INTRODUCTION

The introduction of the FUA Concept is based on the fundamental principle that airspace is one continuum to be allocated for use on a day-to-day basis to accommodate user requirements.

2. FLEXIBLE USE OF AIRSPACE CONCEPT

2.1 Definition. The basis for the Flexible Use of Airspace Concept is that airspace is no longer designated as either "military" or "civil" airspace but is considered as one continuum and used flexibly on a day-to-day basis. Consequently, any necessary airspace segregation is only of a temporary nature.

2.2 History. Identified as a judicious use need of European airspace by the European Civil Aviation Conference, since 1990 several versions of this concept have been stated, such as En-Route Strategy which had as implementing term 1998. January 2000 marks another stage included in the 2000+ Strategy, which names a version of this concept "One Airspace".

Despite the disappearance of land frontiers, airspace frontiers nevertheless still exist. For this reason, the European Commission adopted, on 10 October 2001, a package of

measures on air traffic management with a view to establishing the single European sky by the end of 2004. The objective is to put an end to the fragmentation of European Union (EU) airspace and to create an efficient and safe airspace without frontiers.

2.3 Evolution. The necessary evolution of the FUA Concept is described in the "EUROCONTROL Airspace Strategy for the ECAC States" under the Enhancement of European Airspace Management initiative:

2005: Extend Fexible Use of Airspace (FUA) application to the Lower Airspace, where beneficial;

2005: Expand Airspace Planning with Neighbouring States for Cross-Border Operations;

2006: Extend FUA with Dynamic Airspace Allocation to respond to short-term changes;

2006: Harmonise Operational Air Traffic/General Air Traffic (OAT/GAT) Handling to the maximum possible extent across Europe;

2008: Introduce Collaborative European Airspace Planning in line with the 'Single European Sky';

2015: Move towards a more demand-responsive and integrated function to support the ECAC States' collective responsibility for European airspace planning and management.

2.4 Objectives. The introduction of the Flexible Use of Airspace Concept is based on the fundamental principle that airspace is one continuum to be allocated for use on a day-to-day basis to accommodate user requirements.

The FUA Concept will allow the maximum joint use of airspace by appropriate civil/military co-ordination to achieve the required separation between civil and military flights, hence reducing airspace segregation needs.

2.5 Concept. The FUA Concept increases the flexibility of airspace use and provides Air Traffic Management (ATM) with the potential to increase the capacity of the air traffic system. The FUA Concept allows the maximum joint use of airspace. The FUA Concept also ensures, through the daily allocation of flexible airspace structures, that any necessary segregation of airspace is based on real usage within a specific time period. Effective application of the FUA Concept requires the establishment in each of the European Civil Aviation Conference (ECAC) States of a national High-Level Airspace Policy Body. This body is tasked with the re-assessment of national airspace, the progressive establishment of new flexible airspace structures and the introduction of procedures for the allocation of these airspace structures on a day-by-day basis.

The practical application of the FUA Concept relies on national Airspace Management Cells (AMCs) for the daily allocation and promulgation of flexible airspace structures in the Airspace Use Plan (AUP), and on the Centralised Airspace Data Function (CADF) for the dissemination to aircraft operators of the daily availability of non-permanent Air Traffic Services (ATS) routes by the Conditional Route Availability Message (CRAM). The States should also establish real-time civil/military co-ordination facilities and procedures to fully exploit the FUA Concept.

2.6 Flexible airspace structures. The Flexible Use of Airspace Concept is based on the potential offered by adaptable airspace structures and procedures that are especially suited to temporary allocation and utilisation:

2.6.1 Conditional Route (CDR). A non-permanent Air Traffic Services (ATS) route or portion thereof which can be planned and used under specified conditions. According to their foreseen availability, flight planning possibilities and the expected level of activity of the possible associated Temporary Segregated Areas (TSA), Conditional Route (CDRs) can be divided into the following categories:

- Category One : Permanently Plannable CDR,
- Category Two : Non-Permanently Plannable CDR,
- Category Three : Not Plannable CDR.

2.6.2 Temporary reserved area (TRA).

Airspace temporarily reserved and allocated for the specific use of a particular user during a determined period of time and through which other traffic may be allowed to transit under Air Traffic Control (ATC) clearance.

2.6.3 Temporary segregated area (TSA).

Airspace temporarily segregated and allocated for the exclusive use of a particular user during a determined period of time and through which other traffic will not be allowed to transit.

2.6.4 Cross-border areas (CBA).

Temporary Reseverd Airspace (TRA) or Temporary Segregeted Airspace (TSA) established over international boundaries.

2.6.5 Reduced co-ordination airspace (RCA). A specified portion of airspace implemented when Operational Air Traffic (OAT) is light or has ceased and within which General Air Traffic (GAT) is permitted to operate outside the ATS route structure without requiring General Air Traffic (GAT) controllers to initiate co-ordination with Operational Air Traffic (OAT) controllers.

2.6.6 Prior co-ordination airspace (PCA). A given block of controlled airspace within which military activities can take place on an ad-hoc basis with individual General Air Traffic (GAT) transit allowed under rules specified in Letter of Agreements between civil and military Air Traffic Services (ATS) units concerned.

2.7 The three airspace management levels. The 3 main levels of Airspace Management (ASM) correspond to civil/military co-ordination tasks in a distinct and close relationship. Each level has an impact on the others.

2.7.1 ASM Level 1.

Establishment of pre-determined airspace structures

STRATEGIC LEVEL

Is the high level definition and review of the national airspace policy, taking into account national and international airspace users and Air Traffic Services (ATS) providers requirements.

Related tasks include the establishment of the airspace organisation, the planning and the creation of permanent and temporary airspace structures, and the agreement of airspace use priorities and negotiation procedures.

2.7.2 ASM Level 2.

Day-to-day alocation of airspace acoording to user requirements

PRE-TACTICAL LEVEL

Is the conduct of operational airspace management within the framework of the structures and procedures defined at Level 1. Pre-Tactical tasks include the day-to-day allocation of airspace and the communication of airspace allocation data to all the parties concerned.

2.7.3 ASM Level 3.

Real-time use of airspace allowing a safe OAT/GAT separation

TACTICAL LEVEL

Consists of the activation, de-activation or real-time reallocation of the airspace allocated at Level 2, and the resolution of specific airspace problems and/or individual traffic situations between Operational Air Traffic (OAT) and General Air Traffic (GAT).Related tasks include the prompt exchange of data with or without system support between the relevant civil and military ATS units to permit the safe and expeditious conduct of both Operational Air Traffic (OAT) and General Air Traffic (GAT) flights.

3. CONCLUSIONS & ACKNOWLEDGMENT

-FUA ensures the simultaneous civil and military flights safely

-cost cut for military and civil operators

-promoting harmonization of navigation equipment

-favors the development of joint civil-military structures

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